

Alliance of Automobile Manufacturers

Driver Distraction and Safety

Safety of our highway transportation system is a critical interest for all Americans. Motorists are traveling 500 million miles each week in their vehicles, and it is important for automobile manufacturers to make this time safe for vehicle occupants. Additionally, many motorists want in-vehicle **information and** communication systems to make these travel hours more productive. However, there is growing concern regarding the potential distraction of such communication systems. Telematics – the use of electronics and communications technologies to provide guidance and information to the driver – offers significant benefits in time efficiency and has demonstrated value in improved personal safety and security through the ability to quickly summon medical help to a crash scene, locate stolen vehicles, provide real-time navigation and traffic advisories, report impaired or aggressive drivers, etc. The potential distraction associated with these features must be weighed against their safety benefits and minimized to the extent possible.

Driver attentional distraction has been one of the leading causes of crashes since police reporting began decades ago. Responding to changes in the external driving environment must be the driver's priority task, but a driver typically balances this along with conversations with other passengers, thinking about work, home, family, dealing with small children, eating, and sometimes distraction from in-vehicle devices. All of these elements contribute to a driver's visual and cognitive workload. We believe that vehicles should be designed to minimize the potential for driver distraction, and appropriate information should be provided to drivers to assist them in properly balancing these tasks and operating their vehicles safely.

The goal is to allow customers safe communication, by designing systems that limit the amount of unnecessary and excessive attention demands on a driver while he or she is driving. At their discretion today, drivers are using a variety of hand held (non-automotive) devices in their vehicles to satisfy a need for expanded access to information. The operator interface on these devices is not typically designed for use while driving. In addition, some drivers might perform several functions at once using multiple non-integrated devices. Integrating such systems would

allow the automobile manufacturer to design them to minimize the amount of time drivers take their eyes off the road or a hand off the wheel. It would also allow the automatic deactivation of those not in immediate use, and potentially reduce distraction.

Current vehicle telematics systems have been designed to the internal requirements of our members, which are based upon a set of common sense principles to guide how information delivery systems are designed into its automobiles. These typically include:

- o Minimizing the amount of time drivers take their eyes off the road or a hand off the wheel
- o Making particularly demanding tasks unavailable while driving
- o Limiting the number of interfaces that can be accessed simultaneously

For example, current systems usually use just a few buttons for operation, and some will soon be supplemented by even easier systems that are voice activated. Another example is the current integrated phone systems, which can automatically mute the radio. This eliminates the need for the driver to manually mute the radio, and also eliminates distraction from radio programs.

Vehicle manufacturers have used internal design guidelines over the years to continuously improve the operating environment of motor vehicles. It may be worthwhile to examine these internal guidelines to see what elements should become part of a broader industry design guideline package. For example:

- o How to design and locate information and communication systems so they are compatible with the driving task
- o How to present information so to minimize distraction and information overload
- o How to assure that no part of the system interferes with the driver's necessary view of the road or obstruct vehicle controls and displays that are essential to the safe operation of the vehicle

- How to present information that is relevant and useful with minimal diversion from the primary task of driving the vehicle

While development of such design guidelines may be a useful exercise, it is equally important to remember that safe vehicle operation is primarily the responsibility of the adult driver. The importance of this responsibility cannot be overlooked or minimized.

Designing future vehicles that address safety needs while implementing technologies that customers desire will require additional understanding of human-machine interface. The Alliance proposes to address driver distraction in three ways. First, as noted above, in the near term, develop industry guidelines that incorporate the most current information regarding human-machine interface. Second, over time, conduct additional research to better understand the safety implications of future telematics features, and enable the development of more comprehensive requirements. Third, again in the near term, investigate ways to enhance public awareness and to encourage safe driving behaviors.

Develop industry guidelines for telematics systems

By combining the independent efforts of our members, with the government's most recent driver distraction information, we propose developing telematics guidelines to assure that the best requirements are in place in the shortest amount of time possible. As shown by the industry agreements on Side Airbag out-of-position testing, a joint effort can provide implementable, real-world safety benefits without the delay of formal regulatory processes.

Conduct advanced research

The increasing sophistication of vehicle technologies requires more comprehensive requirements than are possible today, including both visual and cognitive demand. Industry and government research is needed to develop practical, repeatable driver workload metrics and procedures that can realistically assess which types of driver interface tasks are appropriate to perform while operating a vehicle. Many of our members are already collaborating with the US Department of Transportation (DOT) to develop a cooperative research program to define driver workload metrics.

Experts are currently participating on several SAE committees charged with establishing Recommended Practices on human-machine interfaces, and driver distraction.

Key research opportunities include the expansion of the current DOT-Industry research, and the utilization of advanced research tools, such as NHTSA's National Advanced Driving Simulator. In the future, vehicle OEMs will be able to use objective workload evaluation procedures to assess the effect of in-vehicle tasks on overall driving workload. Timing of this research is anticipated to support the development and implementation of advanced telematics features.

Investigate opportunities to enhance public awareness

In addition to safe vehicle designs, the Alliance supports driver education to encourage safe driving behaviors. We encourage NHTSA to work with interested parties on this important matter, and would be pleased to be part of that process.

Summary

The Alliance and its members recognize the challenge of meeting the demands and expectations of consumers for providing improved functionality, safety and security that telematics offers, balanced against the implications of driver distraction and information overload. Through the collective efforts of all interested parties a better understanding of the state-of-knowledge for the human-machine interface can be realized and a forward-looking research program can be defined. We are ready to work with the agency and others on advancing this important work.